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Effectiveness of a multidimensional web-based intervention program to change Brazilian health practitioners' attitudes toward the lesbian, gay, bisexual and transgender population

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Abstract

The objective of this study was to assess the effectiveness of a multidimensional (educational, affective and behavioural) web-based intervention to change healthcare practitioners' attitudes toward lesbian, gay, bisexual and transgender population. It aimed to measure gender and sexual (GenSex) prejudice pre- and post-intervention in relation to sociodemographic characteristics. A total of 307 health practitioners from southern Brazil enrolled and completed the follow-up assessment. The intervention had significant effects, varying across traditionally high prejudiced groups. State- and street-level continuous prejudice reduction policies are suggested.

Keywords

Brazil, gender, health, prejudice, sexuality

Introduction

Data collected over the past several years in a number of countries have consistently demonstrated significant physical and mental health disparities in gender and sexual (GenSex) minorities when compared to non-minority groups (King et al., 2008; Lick et al., 2013; Marshal et al., 2008, 2011). Behind most of those disparities lies the direct and indirect effect of GenSex prejudice and discrimination (Hatzenbuehler, 2014; Hendricks and Testa, 2012; Meyer, 2003).

The contemporary academic framework understands GenSex prejudice primarily as a

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stigma, a societal phenomenon: 'a culture's shared knowledge about the negative regard, inferior status, and relative powerlessness that society collectively accords to non-heterosexual behaviours, identity, relationships, and communities' (Herek and McLemore, 2013: 311). The same seems to be true for gender-nonconformity and transgenderism (Hill and Willoughby, 2005; Warner, 1993). This negative hierarchy of GenSex minorities manifests, for example, in policies that discriminate or do not take into account specific health needs of trans people (Stroumsa, 2014) and, definitely, in individual attitudes. For GenSex minorities, internalized stigma involves directing negative attitudes toward oneself, which may impair the overall health status (Ceará and Dalgalarrondo, 2010; Dunn et al., 2014) and the disposition to seek for healthcare (Bauer et al., 2014). By contrast, when non-LGBT (lesbian, gay, bisexual and transgender) people internalize stigma, their feelings are directed outward at GenSex minorities in the form of negative attitudes (Herek, 2004).

Healthcare practitioners' negative attitudes toward LGBT service users and their children have been documented in all levels of care (for primary, e.g. Yen et al., 2007; secondary, Chapman et al., 2012; and tertiary, Nicol et al., 2013). Similarly as in other contexts, studies report that being more religious and not having LGBT acquaintances were related to higher levels of prejudice, which in turn changed the care given to LGBT service users and their children. Even in settings where self-reported prejudice is low, studies have consistently shown that implicit attitudes negatively affect the quality of healthcare (related to implicit racism; see Green et al. (2007)). Besides the direct impact of lower quality care, health practitioners' prejudice can make LGBT population avoid services in an anticipation of the negative consequences of discrimination, posing dangerous effects for overall health (Wilson and Yoshikawa, 2007).

Brazilian empirical research on GenSex prejudice is recent and scarce. In a review of the Brazilian empirical GenSex prejudice literature, Costa et al. (2013) included some studies in health contexts. Most of these studies investigated the attitudes of undergraduate health students, concluding that prejudice is prevalent, explicit and not decreasing (Araujo et al., 2007; Egry, 1985; Fleury and Torres, 2007; Lacerda et al., 2002). In line with international counterparts, Brazilian research also points to the negative impact of practitioners' GenSex prejudice in the care of gay men (Cunha and Gomes, 2015) and women (Barbosa and Facchini, 2009; Valadão and Gomes, 2011), but mainly toward gender non-conforming users (Cerqueira-Santos et al., 2010; Romano, 2008).

International applied psychological research has proposed a number of successful interventions to change GenSex prejudiced attitudes (Paluck and Green, 2009; Tucker and Potocky-Tripodi, 2006), including the healthcare context (Burgess et al., 2007). Interventions that have proven most successful were those combining a cognitive-based approach (education on LGBT issues) with an affective-based approach (intergroup contact with GenSex minority individuals) (Bartoş et al., 2014). Educational programmes ought to provide opportunities for advancing LGBT-related knowledge, dispelling myths and stereotypes, increasing awareness about participants own attitudes towards LGBT individuals and its related impact (see, for example, Godfrey et al., 2006; Scher, 2009). Regarding intergroup contact, the approach was found to be effective not only through physical presence of LGBT people but also with imagined, indirect or otherwise mediated contact (Bartoş et al., 2014). Attention was also paid to behavioural interventions, for example, practising the skills and awareness participants acquired under appropriate supervision (Jewell et al., 2012).

With those principles in mind, the Institute of Psychology of the Universidade Federal do Rio Grande do Sul (UFRGS) created, in tandem with the State Health Department of Rio Grande do Sul (Secretaria Estadual da Saúde do Rio Grande do Sul (SES-RS)), in the south of Brazil, a multidimensional web-based intervention programme to change healthcare practitioners' attitudes toward the LGBT population and the issues that affect them. The objective was to

Table 1. Multidimensional programme structure.

Week	Educational component	Behavioural component	Sensitivity component
1	• Discrimination and prejudice toward LGBT individuals and its impact on health • Legal framework	Perspective taking	Peer education
2	• Basic concepts for understanding LGBT individuals	Need assessment	Peer education
3	• Best practices in healthcare • Dispelling myths and stereotypes	Activity planning	Peer education
4	–	Evaluation of the activity	Peer education

increase participants' knowledge and skills to improve the quality of the healthcare of LGBT individuals by protecting them against violations and discrimination and by increasing the awareness of their specific needs.

The intervention had three components (educational, affective and behavioural) and was delivered through UFRGS e-learning platform in a 4-week period (Table 1). The education component was a weekly slide-based self-learning course. The content was developed and validated by experts in gender and sexuality, health professionals and members of the LGBT community. In the first week, there was a presentation of Brazilian legal framework regarding protections and guarantees of LGBT healthcare, and an introduction to the topic of discrimination and its relation to LGBT health. In the second week, basic concepts on gender and sexuality were presented (e.g. gender assignment, gender identity, sexual orientation and bisexuality). Finally, in the third week, the course dealt with best practices in LGBT healthcare, discussing popular misconceptions, dispelling myths and stereotypes. In addition, the e-learning platform included all the studies, laws and polices cited throughout the course, information and contacts to local non-governmental organizations (NGOs) and services directed to the LGBT population in the state.

In relation to the behavioural component, during the first week, participants were asked to report their experience with LGBT users. In the case of no experience, participants were encouraged to take the perspective of an LGBT user and imagine how the contact would happen. In the second week, participants were able to create a LGBT service user's need assessment plan of their healthcare service based on the contents of the educational courses. During the third week, participants were asked to organize an action to improve healthcare for LGBT people at their services. Participants were encouraged to carry out this activity during the following week period. Lastly, participants were asked to evaluate the activity proposed in the former week, and in case of not being able to implement it, institutional barriers, fears and anxieties were discussed. All activities were posted, openly, in a forum.

Participants attended the e-learning platform in groups of approximately 20, accompanied by a tutor. The set of tutors consisted of 17 health practitioners, LGBT activists and graduate students in the field of health and LGBT-related issues. All of them disclosed their affiliation at the beginning of the intervention. Tutors were instructed to discuss participants' doubts individually (if any) and to mediate group discussion in the forums. In the first week, participants commented on two videos that featured reports by LGBT individuals of discrimination in healthcare settings. In the second, third and fourth weeks, participants were instructed to comment on each other's activities in the forums, at least one time, (need assessment, activity planning and evaluation). During this period, tutors encouraged discussion among peers and prompted participants in case of manifestation of prejudiced beliefs or behaviours. In addition, participants were encouraged to interact with their colleagues' responses. The interaction between peers and tutors configured the affective component of the intervention.

The objective of this study was to evaluate the effectiveness of the intervention programme and, specifically, to focus on (1) how health practitioners manifest GenSex prejudice prior

to the programme in relation to their sociodemographic characteristics; (2) the prevalence of episodes of discrimination in health services as reported by the practitioners; and (3) the effect of the programme on groups notoriously associated with higher levels of prejudice (men, religious person, small town inhabitants and people who had no previous education on the subject).

Method

This is a pre–post effectiveness assessment study based on prejudice level modification after a GenSex diversity intervention programme designed for health providers.

Context and procedures

Rio Grande do Sul is the southernmost state of Brazil. In 2014, the state population was estimated at 11,247,972 inhabitants, with more than 50 per cent of those living in the metropolitan area of Porto Alegre, the state capital (IBGE, 2015). Brazil does not have a law criminalizing GenSex discrimination. However, the city of Porto Alegre has legislation since the 1990s that predicts administrative penalties for such acts; this law was the result of the pressure of an important LGBT movement that promotes gay pride parades since 1996 in the city. The state has a similar legislation since 2002. The state also has a law requiring trans people to be treated by their chosen name, providing even a state identification document, since the Brazilian federal government still does not allow document ratification. Nevertheless, official data from the Brazilian Human Rights Secretariat point out that, in 2012, there were 202 indictments related to 396 notifications of right violations regarding GenSex minorities in Rio Grande do Sul, including psychological abuse (166), general discrimination (145), physical violation (58), sexual violence (10), institutional violence (3) and financial abuse (1). There was an increase of 248 per cent in notifications when compared to the data from 2011 (the year of implementation of the hot line for denouncing LGBT Humans Rights violations), when 58 indictments were reported (Brasil, 2012). It is noteworthy that the Trans Murder Monitoring Project has shown that Brazil has one of the highest homicide rates of trans persons worldwide (Balzer et al., 2012).

The State Health Department is organized into 19 Regional Health Coordination offices. Each is responsible for a subset of the 497 state municipalities, providing institutional support on the different health policies, including those for the LGBT population. The UFRGS university hospital in Porto Alegre houses a Gender Identity Program (PROTIG). Since 1998, the programme aims to provide assistance and conduct research regarding the trans community and their families. PROTIG supplies medical assistance, psychological support and family orientation; it also provides sex reassignment surgery and hormonal therapy, all funded by the Brazilian Unified Health System (*Sistema Único de Saúde, SUS*).

Invitations for the intervention programme were sent to all Health Coordination offices through institutional channels. The intervention was available for free on the UFRGS e-learning platform (modular object-oriented dynamic learning environment – Moodle/UFRGS). The inclusion criterion was being a health practitioner or health associate professional working in Rio Grande do Sul in any level of healthcare. The first edition of the intervention happened in 10 March 2014 and lasted until 4 April 2014, and the second edition from 4 August 2014 to 31 August 2014.

In the beginning and at the end of the programme, participants were asked to answer an electronic questionnaire on the e-learning platform. Before each questionnaire, a consent form was presented and participants were asked about their wish to participate in the study. Additionally, each tutor was instructed to collect participants' exemplary contributions. The research committee of the UFRGS Institute of Psychology (project no.: 23459) and the ethics committee of the same institute (CAAE: 04642712.9.0000.5334) approved this project.

Measurements

Sociodemographics. The sociodemographic questionnaire involved questions about gender, age, education level, population density of the place of residence (city of over 500,000 inhabitants, from 100,000 to 500,000 or under 100,000 inhabitants) and religiosity (religious, non-religious). In addition, participants were asked about their profession: occupation (nursing, psychology, medicine, etc.), nature of activity (assistance, education, management, other), area of activity (municipal level, state level, federal level, private services or NGOs) and the level of care (primary (community-based clinics); secondary (specialized clinics, general hospitals); tertiary (high complexity specialized hospitals); or other (schools, prisons, social service, NGOs)). Participants were also asked whether they had taken part in any kind of course or activity related to sexual and gender diversity. Finally, the questionnaire asked whether the participants had seen or knew of any anti-homosexual/transgender humiliation, physical assault or mistreatment of a user at their health service.

Prejudice Against Sexual and Gender Diversity Scale. An 18-item questionnaire assessed Gen Sex prejudice, asking participants pre- and post-programme about their attitudes (beliefs, affects and behaviours) toward gays, lesbians, transgender people and gender non-conformity. This scale was created to evaluate extreme explicit GenSex prejudice, specifically within the Brazilian context (Costa et al., 2015a). A revised version of the instrument was used in this study (Costa et al., in press).

While in the Anglo Saxon and Continental European contexts, explicit and old forms of GenSex prejudice seem to be diminishing, justifying the need for implicit measures, the same seems not to be true in Brazil. The review by Costa et al. (2013) highlighted that in the Brazilian context, explicit forms of prejudice are still prevalent. In addition, it showed that sexuality tends to be perceived through gender expression and sexual roles, a phenomenon that was also pointed out by previous ethnographic research (Fry, 1986; Green, 1999; Parker, 1999), that is, although there is a clear theoretical distinction between sexual and gender diversity, from the standpoint of manifestation of prejudice, that distinction seems to be more tenuous. In this milieu, those particularly targeted are the members of the transgender community, mainly the Brazilian cultural-specific transgender identity, *travesti. Travestis* are assigned male at birth, but affirm female gender performance and bodily forms, though typically not undergoing genital modification. Their gender identity varies across individuals and contexts: most identify as male (due to their biological characteristics, but with feminine gender expression), some as women, and others simply as *travesti* (Barbosa, 2013).

The Prejudice Against Sexual and Gender Diversity Scale prioritizes the assessment of prejudice in gendered terms, including the Brazilian transgender identity, *travesti.* It is based on items from two prior instruments: one evaluating prejudice against non-heterosexual orientation (Attitudes Toward Lesbians and Gays Scale; Herek and McLemore, 2011) and the other investigating prejudice against gender non-conformity and transsexuality (Genderism and Transphobia Scale; Hill and Willoughby, 2005). The former items were adapted to Brazil, and new items were created.

Items comprising blatant hostility, stereotypes endorsement and extreme emotional reactions form the scale, such as 'male homosexuality is a perversion', 'masculine girls should receive treatment', 'men and women should be prohibited from changing their sex' and '*travestis* make me feel sick'. Participants answered on a 5-point Likert scale, ranging from 1 (completely disagree) to 5 (completely agree). The scale was validated using an item response theory (IRT) Rasch model. Cronbach's α indicated high internal consistency ($\alpha = .93$).

Participants

A total of 457 participants from all 19 Regional Health Coordination offices were enrolled and concluded the two editions of the programme.

Table 2. Sample demographic characteristics.

	n	%
Gender		
Woman	259	84.36
Man	48	15.63
Education		
Secondary degree	36	11.72
Bachelor's degree	101	32.89
Post-graduate degree	170	55.37
Population of place of residence		
Over 500,000	110	35.83
From 100,000 to 500,000	92	29.96
Under 100,000	105	34.20
Previous GenSex education		
Yes	214	69.70
No	93	30.29
Religiosity		
Religious	239	77.85
Non-religious	68	21.14

Of those, 307 agreed to participate and completed the pre- and post-evaluation survey. The average age was 34.52 years (standard deviation (*SD*) = 9.40) with the maximum 62 years and minimum 18 years. Considering the overall sample, almost 70 per cent had participated in previous GenSex education. Nevertheless, this number drops to 65.21 per cent considering those from smaller cities, and to 44.44 per cent among those with secondary degree. Other demographic information can be found in Table 2. Occupational characteristics can be found in Table 3.

Data analysis

The Prejudice Against Sexual and Gender Diversity Scale mean levels pre- and post-programme were calculated by the sum of the scores of the items. Paired *t*-tests were used to establish the difference in the prejudice score before and after the programme. The influence of sociodemographic variables on the effect of the intervention was analysed using a repeated measure linear fixed-effect model with a compound symmetry matrix, and maximum likelihood estimation. Differences between the participants' prejudice score by gender, religion and previous training in the subject were calculated using unpaired *t*-tests. Cohen's *d* was used for effect sizes. The differences between place of residence and educational level were calculated

Table 3. Sample occupational characteristics.

	n	%
Occupation		
Nurse	84	27.36
Psychologist	64	20.85
Social worker	37	12.05
Health technician (multiple areas)	28	9.12
Administrative assistant	13	4.23
Physician	12	3.91
Health intern (multiple areas)	12	3.91
School teacher	9	2.93
Pharmacist	7	2.28
Community agent	5	1.63
Dentist	5	1.63
Physiotherapist	5	1.63
Occupational therapist	5	1.63
Biologist	4	1.30
Nutritionist	4	1.30
Lawyer	3	0.98
Harm reduction outreach worker	3	0.98
Sanitarian	2	0.65
Sociologist	2	0.65
Art therapist	1	0.33
Speech therapist	1	0.33
Pedagogue	1	0.33
Nature of the activity[a]		
Assistance	204	66.45
Management	66	21.50
Other	45	14.66
Education	22	7.17
Area of activity[a]		
Municipality	213	69.38
State level	71	23.13
Private service	32	10.42
Federal level	20	6.51
NGO	6	1.95
Level of care[a]		
Primary	166	54.07
Secondary	77	25.08
Other	64	20.85
Tertiary	51	16.61

NGO: non-governmental organization.
[a]multiple answers.

using analysis of variance (ANOVA). Effect sizes were calculated using η^2 (eta-squared). Differences were considered significant with a level of $p<.05$.

Regarding the qualitative data (exemplary comments), the students' manifestations were collected according to these categories: struggles with the health service, difficulty with the subject, proposed activity and results of the activity. These manifestations were grouped according to those categories and incorporated in the discussion of the quantitative data.

Results

The mean level of prejudice for the entire sample pre-intervention was 25.37, with a *SD* of 6.77 (95% confidence interval (CI) (24.61, 26.13)), a median of 24.00, and a range from 18 to 55, wherein higher levels denote a greater degree of prejudice. It should be noted that any grade of prejudice above the lowest category (18) is concerning since the scale reflects degrees of extreme prejudice. While differences were found for all variables of theoretical pertinence, large effect sizes were found for previous GenSex education, religiosity and population of place of residence, which is consistent with much of the extant literature (Table 4). Prejudice scores were statistically significantly different between different levels of population density of the place of residence; Welch's $F(2, 191.43)=8.04$, $p<.001$, $\eta^2=.04$. Games–Howell post hoc analysis revealed that the mean increase from 'under 100,000 inhabitants' to 'from 100,000 to 500,000' (Δ 1.45, 95% CI (−0.99, 3.89)) was not statistically significant ($p=.34$); however, a significant difference was found between 'under 100,000' to 'over 500,000 inhabitants' (Δ 3.44, 95% CI (1.36, 5.53), $p<.001$). No difference was found between 'from 100,000 to 500,000 inhabitants' and 'over 500,000' (Δ 1.99, 95% CI (−0.13, 4.12), $p=.07$).

By rounding off results for this research question, we addressed the health practitioners' awareness of discrimination at their institutions. The majority of participants (68.73%) were unaware of any discrimination, 24.75 per cent had heard about it and 6.51 per cent witnessed it. Looking at the overall sample, a one-way ANOVA demonstrated statistically significant differences between those aware of some level of discrimination and those completely unaware in relation to their level of prejudice (Welchs' $F(2, 55.33)=4.30$, $p<.01$, $\eta^2=.02$). A Games–Howell post hoc test confirmed that those who had observed discriminatory acts were significantly less prejudiced than those who were unaware of such acts (Δ 1.13, 95% CI (0.17, 5.80), $p<.05$).

Post-intervention mean level of prejudice for the entire sample was 22.71, with a *SD* of 5.38 (95% CI (22.11, 23.32)), a median of 21.00 and a range from 18 to 52. The intervention statistically significantly reduced the prejudice level (Δ 2.65, 95% CI (2.04, 3.26)), $t(307)=8.26$, $p<.001$, $d=.43$. Sociodemographic variables were analysed in a linear fixed-effects model to establish their influence on the effectiveness of the intervention. All sociodemographic variables affected pre–post intervention prejudice reduction, except previous GenSex education (Table 5, Figure 1).

Comparing the effect of the intervention by gender, the course had almost double the effect among women: $t_{men}(47)=2.09$, $p<.05$, $d=.27$; $t_{women}(258)=8.67$, $p<001$, $d=.55$. A significant post-course prejudice level by gender was found (Δ 1.66, 95% CI (3.32, 0.01), $t(305)=-1.66$, $p<.05$). That difference was not found before the intervention started. Comparing the effect of the intervention by education level, there was a statistically significant difference between pre- and post-prejudice between all levels. However, the post-graduate ($t(169)=7.23$, $p<.001$, $d=.51$) and graduate participants ($t(100)=4.19$, $p<.001$, $d=.38$) had a greater effect than the secondary degree participants ($t(35)=2.37$, $p<.05$, $d=.29$). The difference in prejudice level by educational groups pre-intervention was absent but appeared post-intervention, $F(2, 304)=4.14$, $p=.01$, $\eta^2=.03$. According to Tukey post hoc procedure, secondary degree participants ($M=25.11$, $SD=7.64$) had a higher prejudice score than the graduate ($M=22.48$, $SD=5.52$, $p<.01$) and

Table 4. Pre-intervention prejudice level by sociodemographic groups.

Variable	*M* (*SD*)	Statistic	*p*-value	*ES*
Gender				
Man	26.17 (8.28)	−.75[1]	.46	.12
Woman	25.22 (6.46)			
Education				
Secondary	27.19 (6.76)	1.64[2]	.19	.01
Bachelor's	24.83 (6.72)			
Post-graduate	25.30 (6.86)			
Pop of place of residence				
Over 500,000	23.59 (5.36)	8.04[3]	<.001	.04[a]
From 100,000 to 500,000	25.59 (7.10)			
Under 100,000	27.04 (7.38)			
Previous GenSex education				
Yes	24.49 (6.20)	3.26[1]	.001	.42[b]
No	27.40 (7.58)			
Religiosity				
Religious	25.90 (6.69)	2.60[1]	.01	.36[b]
Non-religious	23.50 (6.77)			

SD: standard deviation; ES: effect size.

Table 5. Linear fixed-effects model summary for prejudice level pre- and post-intervention per sociodemographic groups.

Fixed-effects	Estimates	95% CI	SE	*df*	*t*-value	*p*-value
Intercept	.78	(0.70, 0.86)	.04	307	20.13	<.001
Gender	.10	(0.06, 0.14)	.02	307	4.59	<.001
Education	.08	(0.04, 0.12)	.02	307	3.69	<.001
Pop of place of residence	.03	(0.01, 0.05)	.01	307	3.07	.002
Previous GenSex education	.00	(−0.03, 0.04)	.02	307	0.46	.64
Religiosity	.06	(0.03, 0.08)	.01	307	4.73	.001

CI: confidence interval; SE: standard error; [1]: t-value; [2]: F-value; [3]: Welch's F; a: η2; b: d.

those who had post-graduate degrees ($M=22.35$, $SD=4.57$, $p<.05$).

The difference between prejudice level by population density of place of residence is maintained post-intervention: Welch's, $F(2, 181.03)=6.56$, $p<.01$, $\eta^2=.03$. According to the Games–Howell post hoc test those from cities over 500,000 inhabitants had lower prejudice levels ($M=21.44$, $SD=3.56$) then those from cities from '100,000 to 500,000' ($M=23.16$, $SD=5.51$, $p<.05$) in relation to those from cities under 100,000 inhabitants ($M=23.67$ $SD=6.53$, $p<.01$). 'Over 500,000' ($t(09)=5.26$, $p<.001$, $d=.47$), '100,000 to 500,000' ($t(91)=4.11$, $p<.001$, $d=.38$), 'under 100,000' ($t(104)=5.60$, $p<.001$, $d=.48$).

Finally, participants who reported being religious had a similar pre- and post-intervention prejudice level difference to those who declared to be non-religious: non-religious, $t(67)=3.51$, $p<.001$, $d=.40$; religious, $t(238)=7.83$, $p<.001$, $d=.45$. There was a significant post-intervention prejudice level difference by religiosity, favouring the non-religious group: Δ1.81, 95% CI (0.59, 3.01), $t(148.57)=2.95$, $p<.05$, $d=.38$.

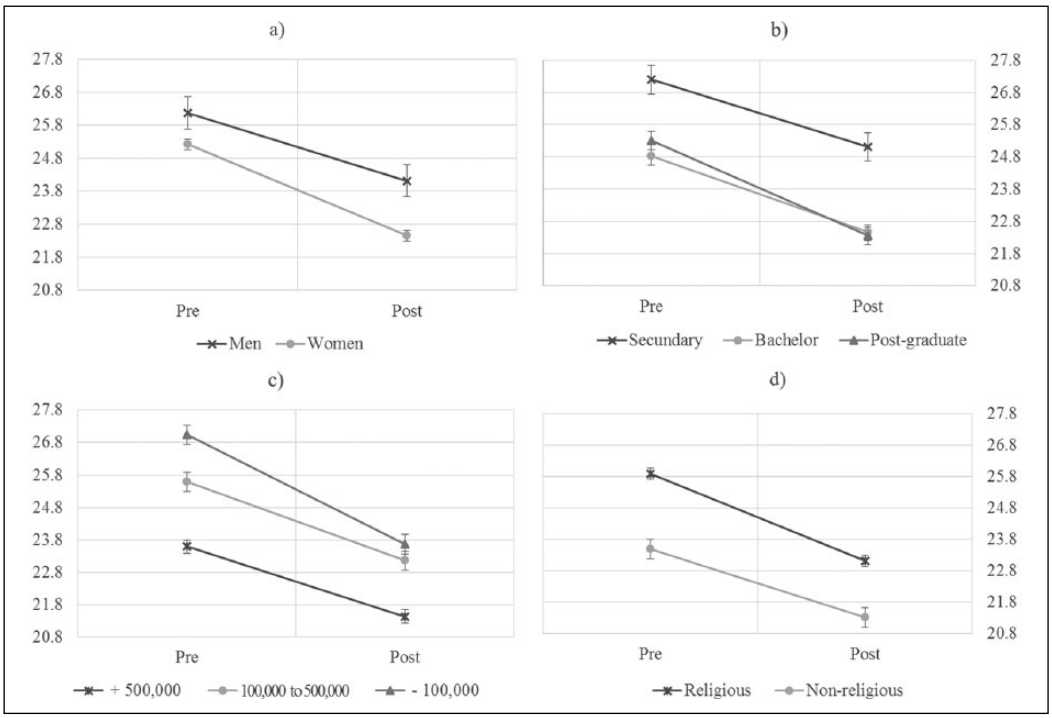

Figure 1. Intervention effect by (a) gender, (b) educational level, (c) population density of the place of residency and (d) religiosity.

Discussion

In relation to the first objective of this study, we were able to show that the pre-intervention prejudice level of the Rio Grande do Sul health professionals was high. Only 11.07 per cent reached the minimum level of self-reported prejudice. It is also noticeable that prejudice was higher among those with less education, inhabiting smaller cities, with no previous education in the subject and religiosity. Similar results have been extensively reported internationally and recently in Brazil, with the same scale in a sample of undergraduate students (Costa et al., 2015b). Prejudice levels among men, although higher, had no statistic difference when compared to those among women. The standard error (*SE)* was high in this group; therefore, this difference would be possibly significant if the sample were larger. The same can be said to pre-level prejudice of secondary education participants in relation to participants with higher levels of education.

Despite high levels of prejudice, most professionals were not aware of episodes of discrimination in their health services (68.74%). However, if we consider only those with the lowest degree of prejudice, the percentage drops to 44.12 per cent. This result is probably due the fact that the professionals do not have basic knowledge to identify discrimination, including the one perpetuated by them. For example, during the course participants reported not having sufficient information regarding the services offered in the state for transgender people regarding transition. These services exist in the state since 1998. Furthermore, at the beginning of the intervention, many participants still referred to trans women and *travestis* as 'he' instead of 'she', perpetuating a common form of discrimination towards transgender people. One student demonstrated offense at the fact that the course instructed the treatment of transgender people with the correct pronouns as an important factor in healthcare.

Regarding the third aim of this study, it is clear that the intervention was effective. The effect size of our intervention was similar to those reported by recent meta-analysis (Bartoş et al., 2014). The percentage of participants in the lowest category of prejudice rose by 55.73 per cent after the intervention (11.07%–19.87%). A limitation that needs to be pointed out is the lack of a control group. However, the literature on prejudice assessment shows that this kind of measurement has a high temporal stability (test–retest reliability) (Fiske and North, 2014), in a larger degree than the one found in the present study. Although effective, the intervention showed inferior results among men, people with secondary education, from cities with less than 500,000 inhabitants and religious people. Again, these are groups that had historically been singled out for a higher degree of prejudice and resistance to change (Finlay and Walther, 2003; Snively et al., 2004). In the case of gender, the difference between men and women that was non-significant became significant after the intervention. It is important to consider that the status of 'man' and 'woman' was attributed via self-identification. We did not measure the intensity with which participants identified themselves with cultural expectancies regarding femininity or masculinity. However, considering the high degree of feminization of the Brazilian health sector (Machado, 1986; Matos et al., 2013), the differences in the results by gender may also be related to the cultural expectancy of masculinity in a feminized context.

What our findings suggest is that anti-prejudice interventions need to be tailored to each of these groups in order to be more effective, for example, encompassing the construction of masculinity and how it relates to prejudice, the importance of the separation between religious beliefs and healthcare and, especially, a simpler approach for participants with lower levels of education. Despite these limitations, it is important to note that through the standardized online platform it was possible to reach participants from very small towns who would otherwise have no contact with this kind of subject matter. Guided by the tutors, they implemented pioneering actions in their localities, such as positive visibility campaigns, possibly improving the welcoming of LGBT people in their healthcare services.

Considering sociodemographic variables together, having previous GenSex education did not seem to affect the result of the intervention. In our protocol, participants reported participation in interventions without qualifying the type. Therefore, it is not possible to access the kind of intervention they received: compulsory, standardized, innocuous, or whether it aggravated the prejudice. It is notorious that Brazilian GenSex education in the health sciences is predominantly focused on sexual and reproductive health, unrelated to GenSex diversity (Gir et al., 2000; Rufino et al., 2014). Given that non-uniform GenSex education is an unreliable method of diminishing prejudice (Tucker and Potocky-Tripodi, 2006), we can conclude that despite pre- and post-programme prejudice level differences by sociodemographic groups, non-uniform anti-prejudice interventions may not have a cumulative effect. This is a good indicator for health policymaking: the need to invest in tested and effective interventions.

The first Brazilian LGBT-related health policy emerged with the governmental response for the AIDS epidemics in the early 1980s. Brazilian HIV/AIDS national policies assisted the organization of the contemporary LGBT movement by funding NGOs and promoting health actions through communities (Berkman et al., 2005). Since 1990, Brazil has a publicly funded system that provides free healthcare for all levels of attention. The LGBT movement, which has strengthened in the previous decades, helped push the government response to create specific policies to guarantee integral healthcare apart from HIV/AIDS (Grangeiro et al., 2009). Examples of those policies are the guarantee of access to gender reassignment procedures and, recently, the National Policy that provided a framework for the comprehensive primary and secondary care for the LGBT population (Mello, 2011).

One of the guidelines of the LGBT National Health policy is the creation of state- and municipal-level strategies to ensure non-discriminatory healthcare access through the training of the providers. Since July 2013, the Rio Grande do Sul Department of Health has established a special department for the LGBT population. The partnership with UFRGS's Institute of Psychology in establishing diversity-training was groundbreaking. The improvement of the health conditions of the LGBT population comprises reducing the attitudes of health practitioners through confronting their bias as well as the promotion of a LGBT comprehensive education. The implementation of interventions, incorporating classic social psychological tools, in a low-cost web-platform, according to our result, is a reliable action. The implementation of continuing interventions, such as the one proposed, will ensure that the Brazilian Unified Health System fulfils its principles becoming increasingly equitable.

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